Plains CO_2 Reduction (PCOR) Partnership

Practical, Environmentally Sound CO_2 Sequestration

What Is CO_2 Sequestration?

Carbon dioxide (CO_2) is a major by-product of energy use. CO_2 sequestration means capturing CO_2 and putting it into environmentally sound temporary or permanent storage. Indirect sequestration is capturing CO_2 from the air and storing it for some period of time in soils or vegetation. Direct sequestration is capturing CO_2 from exhaust or process gas and placing it in relatively permanent storage, usually in underground geological formations.

What Is the PCOR Partnership?

The Plains CO_2 Reduction (PCOR) Partnership is a diverse group of public and private sector stakeholders working together to better understand the technical and economic feasibility of capturing and storing CO_2 emissions from stationary sources of CO_2 in the central interior of North America. The PCOR Partnership is managed by the Energy & Environmental Research Center (EERC) at the University of North Dakota and is one of seven regional partnerships funded by the U.S. Department of Energy's Regional Carbon Sequestration Partnership Program and a broad range of project sponsors.

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PCOR Partnership Region

CO_2 and Sequestration – Did You Know?

- While CO_2 emissions increased, U.S. CO_2 intensity (CO_2 emissions per dollar of gross domestic product [GDP]) decreased by one-third in the 1990s.[1]
- The nine states of the PCOR Partnership region generate about 11% (163 million tons carbon equivalent) of the annual CO_2 emissions for the United States.[1]
- CO_2 emissions in the region are split between mobile (29%) and stationary (71%) sources.[1]
- Croplands, wetlands, and forests in the region represent opportunities for indirect sequestration projects.
- Unminable coals, depleted oil and gas zones, and deep saline reservoirs in the region represent opportunities for direct sequestration projects.
- The PCOR Partnership region is currently home to a major direct value-added sequestration demonstration project.[2]

Why Sequester CO_2?

There is concern that the ongoing accumulation of CO_2 and other greenhouse gases in the atmosphere from human activity will affect global climate. The President's Global Climate Change Initiative, issued in the spring of 2003, calls for an 18% reduction in U.S. CO_2 intensity by 2012. Conservation, more efficient power systems, renewable energy, and sequestration are all tools to help reduce CO_2 intensity.

What Role Will the PCOR Partnership Play?

The partnership will assess and prioritize the opportunities for sequestration in the region and identify and work to resolve the technical, regulatory, and environmental barriers to the most promising sequestration opportunities. At the same time, the partnership will work to inform policy makers and the public regarding CO_2 sources, sequestration strategies, and sequestration opportunities.

Sources

1. http://yosemite.epa.gov/globalwarming/ghg.nsf.
2. Jerrell, P.M., Fox, C.E., Stein, M.H., and Webb, S.L., 2002, Practical aspects of CO_2 flooding, Richardson, Texas, Society of Petroleum Engineers, Inc., Figure 1.9, p. 8.

Who Is Involved in the PCOR Partnership?

Managed by the EERC, the PCOR Partnership includes more than 40 public and private sector stakeholders from the region and elsewhere that represent expertise in agriculture, forestry, economics, energy exploration and production, geology, engineering, and the environment. The partnership also includes members with practical experience with direct and indirect sequestration, including value-added projects.

Phase I partners include the following:

- U.S. Department of Energy
- University of North Dakota Energy & Environmental Research Center
- Alberta Department of Environment
- Alberta Energy and Utilities Board
- Alberta Energy Research Institute
- Amerada Hess Corporation
- Basin Electric Power Cooperative
- Bechtel Corporation
- Center for Energy and Economic Development (CEED)
- Chicago Climate Exchange
- Dakota Gasification Company
- Ducks Unlimited Canada
- Eagle Operating, Inc.
- Encore Acquisition Company
- Environment Canada
- Excelsior Energy Inc.
- Fischer Oil & Gas, Inc.
- Great Northern Power Development, LP
- Great River Energy
- Interstate Oil and Gas Compact Commission
- Kiewit Mining Group Inc.
- Lignite Energy Council
- Manitoba Hydro
- Minnesota Pollution Control Agency
- Minnesota Power
- Minnkota Power Cooperative, Inc.
- Montana–Dakota Utilities Co.
- Montana Department of Environmental Quality
- Montana Public Service Commission
- Murex Petroleum Corporation
- Nexant, Inc.
- North Dakota Department of Health
- North Dakota Geological Survey
- North Dakota Industrial Commission Lignite Research, Development and Marketing Program
- North Dakota Industrial Commission Oil and Gas Division
- North Dakota Natural Resources Trust
- North Dakota Petroleum Council
- North Dakota State University
- Otter Tail Power Company
- Petroleum Technology Research Centre
- Petroleum Technology Transfer Council
- Prairie Public Television
- Saskatchewan Industry and Resources
- SaskPower
- Tesoro Refinery (Mandan)
- University of Regina
- U.S. Geological Survey Northern Prairie Wildlife Research Center
- Western Governors' Association
- Xcel Energy

What Will the PCOR Partnership Produce?

- A comprehensive regional assessment of CO_2 sources and sinks.
- Identification, ranking, and action plans for promising sequestration demonstration projects.
- Key geographic information system products for CO_2 sources and sinks, infrastructure, and regulatory issues.
- Recommendations for monitoring and verification systems.
- Outreach materials including fact sheets on key regional sequestration topics, a Web site, and a 30-minute informational video.

The PCOR Partnership comprises over 40 public and private stakeholders. The kickoff meeting was held December 11–12, 2003, in the recently constructed 47,000-square-foot, $6 million addition to the EERC.

The PCOR Partnership is a collaborative framework to assess regional sequestration opportunities. New members are welcome. To learn more, contact:

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Visit the PCOR Partnership Web site at www.undeerc.org/PCOR.

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